Nov. 23, 1943. N. E. WEIGEL 2,335,223

FOUNTAIN PEN

Filed July 2, 1943

Fig. 1

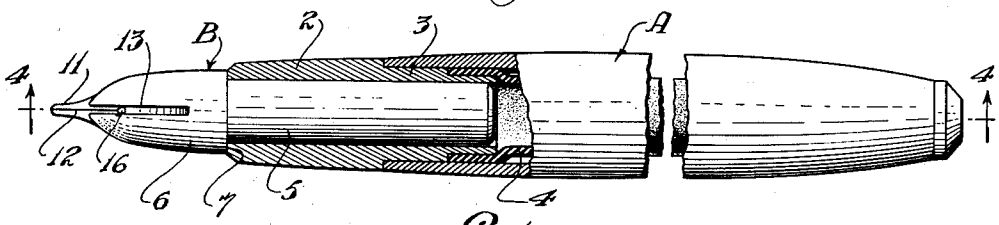


Fig. 2

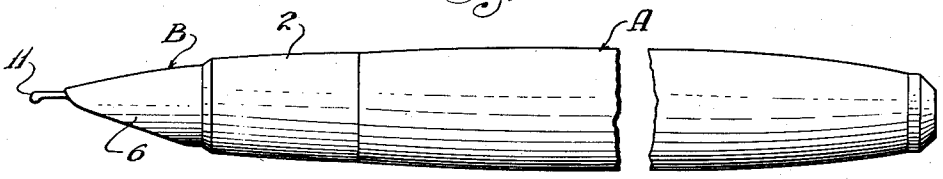


Fig. 3

Fig. 4

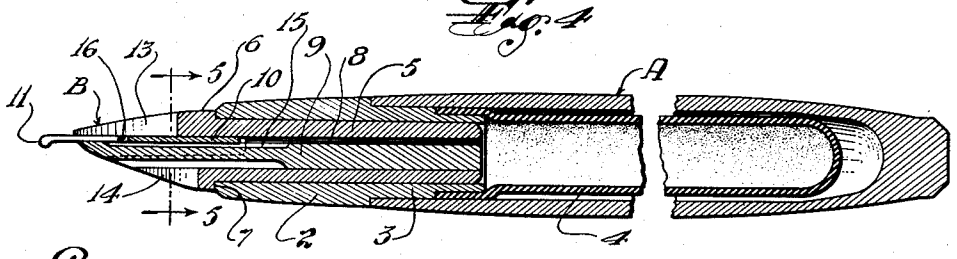


Fig. 5

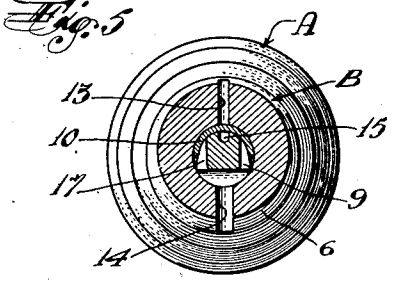
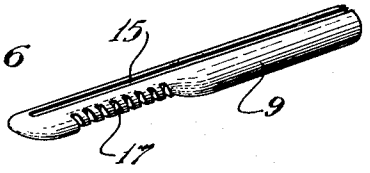


Fig. 6



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Patented Nov. 23, 1943 2,335,223

UNITED STATES PATENT OFFICE

2,335,223

FOUNTAIN PEN

Norman E. Weigel, Short Hills, N. J.

Application July 2, 1943, Serial No. 493,198

6 Claims. (Cl. 120—52)

This invention relates in general to fountain pens and particularly to means for holding the pen point or nib and to means for feeding ink to the nib. This application is related to my copending application Serial No. 459,363 filed September 23, 1942, since matured into Patent No. 2,328,116 dated August 31, 1943.

As pointed out in that application the use of gold in pen points or nibs is highly desirable because of its non-corrosive character and its softness and flexibility which contribute to ease of writing. Because of its high cost and the present restrictions upon its use due to the war, it is necessary that a minimum weight of gold consistent with satisfactory operation be used in pen points, particularly for low cost fountain pens.

In my aforesaid application, I described a gold nip, or pen point, of high carat content but of finer or thinner gauge and smaller than the usual present day nibs, combined with novel nib reenforcing means wherein only the writing point of the nib projects from the pen holder and is overlaid by and in direct contact with a portion of the pen holder which reenforces said writing point against buckling under writing pressure. The aforesaid portion of the pen holder also has an opening communicating with the usual longitudinal slit in the nib and with the atmosphere.

A fountain pen of this character includes a body part or pen holder having a hole therethrough in which is fitted an ink feed bar between which and the walls of said hole is secured a pen nib, and one object of my present invention is to provide a body part or pen holder which shall embody a novel and improved construction wherein the portions of said body part that overlie and contact with the nib are resilient to firmly clamp the nib and the feed bar in said body part.

Another object is to form said resilient portion of said body part so that it may yield under writing pressure on the pen nib to permit greater flexing of said nib and thereby facilitate writing operations.

A further object is to provide novel and improved means for ensuring adequate and constant supply of ink to the nib and at the same time prevent excessively rapid flow and leakage of ink at the nib.

Other objects, advantages and results of the invention will be brought out by the following description in conjunction with the following drawing in which

Figure 1 is a top plan view of a fountain pen embodying my invention with portions of the pen casing broken away and shown in section.

Figure 2 is a side elevational view thereof.

Figure 3 is a bottom plan view of the pen.

Figure 4 is a vertical longitudinal sectional view through a fountain pen on the line 4—4 of Figure 1.

Figure 5 is an enlarged transverse vertical sectional view on the line 5—5 of Figure 4, and

Figure 6 is a detached perspective view of the ink feed bar.

Specifically describing the illustrated embodiment of the invention, the reference character A designates the pen barrel in on end of which is fitted in the usual manner a tubular section 2 which has an extension 3 within the barrel to which the ink sack 4 is connected to serve as an ink reservoir. Within the other end of the section 2 is fitted a nib-holding and ink-feeding unit B.

As shown, the unit B comprises a body part having a shank 5 frictionally fitted into the section 2 and having a head or tip 6 at the inner end of which is a shoulder 7 that abuts the end of the section 2. A hole 8 extends longitudinally through the body part, in which is fitted an ink-feeding bar 9 between which and the walls of the hole 8 is secured a pen nib 10 which has a writing point 11 having the usual slit 12 extending along the longitudinal median plane of the nib. The barrel A and the section 2 may be formed of suitable material, preferably plastic as usual, and the body part and the feed bar of the unit B are formed of plastic material.

The nib 10 preferably is formed of an alloy of gold and is much smaller and contains less metal than the usual pen nibs. It is permissible however, to form the nib of other materials such as stainless steel. Also, the nib is of substantially thinner gauge than pen nibs of the prior art so that the nib is inherently incapable of withstanding writing pressure.

The major portion of the nib 10 is clamped between the feed bar 9 and the walls of the hole 8 in the tip 6 so as to leave only the extremity of the writing point 11 of the nib projecting from the tip as shown in Figures 1 to 4 inclusive. In other words, a portion of the tip overlies substantially the whole of the pen nib in contact therewith so that the latter is reenforced and prevented from buckling or unduly flexing under writing pressure. As shown, preferably the nib is disposed in approximately an axial plane of the unit B and the exposed end of said unit is tapered or curved outwardly from the section 2 to the end of the tip 6 so that the walls of the body part are gradually reduced in thick-

ness outwardly toward the exposed extremity of the body part and a clearance is provided at the underside of the pen nib for writing operations, i. e., to prevent contact of the tip 6 with the surface being inscribed with the pen.

In accordance with the invention the portion of the tip 6 of the body part that overlies the pen nib has a longitudinal slot 13 in its wall that extends along the longitudinal median line of the writing point and opens through the exposed end of the tip. The body part of the unit B is formed of material which has a limited inherent resiliency and accordingly the portions of the tip 6 at opposite sides of the slot 13 may yield under writing pressure on the writing point 11 and thereby permit the writing point to flex to facilitate writing operations. At the same time, the tip effectually reenforces the nib against flexing to such an extent as might impair the writing qualities of the pen.

It is also desirable that the tip 6 have another slot 14 diametrically opposite the slot 13 so that the portions of the tip between said slots may resiliently or yieldingly clamp the feed bar 9 and the nib 10 firmly within the body part of the unit B. With this slotted resilient tip, it is possible to make the feed bar initially slightly oversize, or larger than the portion of the hole 8 in the tip 6, the tip being expansible to accommodate the feed bar; and thus a constant tight fit of the feed bar in said portion of the hole 8 is ensured, and looseness of the feed bar due to shrinking thereof or to inaccuracies in manufacture of the parts is obviated. This resiliency of the tip also facilitates application and removal of the feed bar and nib to and from the tip as well as adjustment of the feed bar and nib within the hole 8 to expose the desired amount of the writing point of the nib.

To insure proper supply of ink from the reservoir 4 to the pen nib, the feed bar 9 has a longitudinal ink feed groove 15 that communicates at one end with the reservoir and at the other end with the slit 12 in the writing point of the nib. As usual it is desirable to have a vent hole 16 at the inner end of said slit.

The nib 10 is so located in the tip 6 that the slit 12 in the writing point of the nib registers with the slot 13 in the tip 6 of the body part so that said slot acts as a breather for facilitating flow of ink through the channel 15 to the writing point of the nib. Should ink flow too rapidly or in excessive quantity through the channel 15 the ink will pass through the slit 12 into contact with the inner wall of the hole 8 beneath the nib, which by surface attraction will cause quick spreading of the ink and accumulation thereof in the slot 13 which thus serves as a trap, thereby preventing squirting or leakage of the ink at the nib.

During writing operations a quantity of ink will accumulate in the slot 13 and form a reservoir to ensure constantly adequate ink at the writing point of the nib for beginning operations without shaking of the pen to start flow of the ink.

To further control the ink flow the portions of the edges of the ink feed bar beneath the nib may be formed with notches 17 which will communicate with the slot 14 when the feed bar is properly assembled in the hole 8. Ink may accumulate in these notches and air may flow through the notches into the capillary space between the underside of the nib and the top surface of the feed bar.

While I have shown the invention as embodied in a certain type of fountain pen and in certain details of structure it should be understood that the invention may be included in other nib holding and ink feeding units than that illustrated and in other types of fountain pens, the essence of the invention residing in the nib holding and ink feeding unit.

What I claim is:

1. A fountain pen including a barrel having a reservoir, a nib-holding and ink-feeding unit comprising a body part secured in one end of said barrel and having a hole therethrough communicating with said reservoir, an ink feed bar fitted in said hole, said body part also having a pair of diametrically opposite longitudinal slots in its walls opening through its exposed end and the portions of said body part between said slots having limited inherent resiliency, a nib secured between the walls of said hole and said feed bar and having a writing point the extremity of which projects from said exposed end of said body part and the major portion of said writing point being overlaid by and in direct contact with the portions of said body part between said slots whereby said writing point is yieldingly reenforced against buckling under writing pressure.

2. The fountain pen set forth in claim 1 wherein said writing point has a longitudinal slit in register with one of said slots and there is an ink feed channel in said nib holding and ink feeding unit leading from said reservoir to said slit, and said slot will hold ink from said slit.

3. A fountain pen including a barrel having a reservoir, a nib-holding and ink feeding unit comprising a body part secured in one end of said barrel and having a hole therethrough communicating with said reservoir, an ink feed bar fitted in said hole, said body part also having a pair of diametrically opposite longitudinal slots in its walls opening through its exposed end and the portions of said body part between said slots having limited inherent resiliency, a nib having a writing point secured between the walls of said hole and said feed bar so that the extremity of said writing point projects from said exposed end of said body part and said body part encloses and is in direct contact with the major portion of said nib and the portions of said body part between said slots firmly and resiliently clamp said ink-feed bar and said nib in said body part, said writing point having a longitudinal slit in register with one of said slots and said slot being capable of receiving and holding ink from said slit, said feed bar having notches in its edges beneath said nib which communicate with the other of said slots in said body part.

4. A fountain pen including a barrel having a reservoir, a nib-holding and ink-feeding unit comprising a body part secured in one end of said barrel and having a hole therethrough communicating with said reservoir, an ink feed bar fitted in said hole, said body part also having a pair of diametrically opposite longitudinal slots in its walls opening through its exposed end and the portions of said body part between said slots having limited inherent resiliency, a nib secured between the walls of said hole and said feed bar and having a writing point the extremity of which projects from said exposed end of said body part, said portions of said body part between said slots firmly and resiliently clamping said feed bar and said nib in said body part.

5. A fountain pen including a barrel having

a reservoir, a nib-holding and ink-feeding unit comprising a body part secured in one end of said barrel and having a hole therethrough communicating with said reservoir, an ink feed bar fitted in said hole, a pen nib secured between the walls of said hole and said feed bar and having a writing point the extremity of which projects from said body part, the major portion of said writing point being overlaid and in direct contact with a portion of said body part and said portion of the body part having a longitudinal slot in its wall extending along the longitudinal median line of said writing point and opening through the exposed end of the body part, so that the portion of said body part at opposite sides of said slot reenforce said writing point against buckling under writing pressure but may yield to permit limited flexing of said writing point.

6. For a fountain pen, an ink-feeding and pen-holding body part to be secured in a pen barrel and having a hole therethrough to communicate with a reservoir, an ink feed bar fitted in said hole, a pen nib secured between the walls of said hole and said feed bar and having a writing point the extremity of which projects from said body part, the major portion of said writing point being overlaid and in direct contact with a portion of said body part and said portion of the body part having a longitudinal slot in its wall extending along the longitudinal median line of said writing point and opening through the exposed end of the body part, so that the portion of said body part at opposite sides of said slot reenforce said writing point against buckling under writing pressure but may yield to permit limited flexing of said writing point, said writing point having a slit along its longitudinal median line and there being an ink-feed channel in said feed bar for feeding ink to said nib.

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